OCEAN GALES AND STORMS, AUGUST 1938

Vessel	Voyage		Position at time of lowest barometer		Gale began August—	Time of lowest barometer August—	Gale ended August—	Lowest barometer	Direction of wind when gale began	Direction and force of wind at time of lowest barometer	Direction of wind when gale ended	Direction and highest force of wind	Shifts of wind near time of lowest barometer
	From—	To—	Latitude	Longitude									
NORTH ATLANTIC OCEAN			° ′	° ′				*Inches*					
Cefalu, Hond. S. S.	Cristobal	Puerto Cabezas	11 36 N.	82 00 W.	3	7p, 3	4	29.86	NE	NE, 5	NE	NE, 6	
Susan B. Luckenbach, Am. S. S.	do	New York	15 50 N.	75 57 W.	6	7a, 6	7	29.94		E, 3		NE, 9	
West Isleta, Am. S. S.	Trinidad	do	17 36 N.	63 06 W.	7	8a, 7	8	29.92	ENE	NE, 5	E	E, 12	NE-ENE.
New York, U. S. Navy	Antwerp	Norfolk	36 42 N.	71 18 W.	8	7a, 9	9	30.02		W, 8		W, 8	
Santa Rita, Am. M. S.	New York	Cristobal	21 16 N.	74 15 W.	9	2p, 9	9	29.80	NE	SSE, 6	SSE	E, 8	NE-SSE.
Falcon, Am. S. S.	Cristobal	Baltimore	22 12 N.	74 24 W.	8	4p, 9	10	29.81	NE	E, 9	E	E, 9	NE-E.
Tela, Hond. S. S.	Puerto Barrios	Charleston	[1] 23 18 N.	83 21 W.	10	4p, 10	10	29.59	E	ENE, 5	E	E, 6	ENE-E.
Lysefjord, Nor. S. S.	Santiago	Kingston	[1] 18 16 N.	76 03 W.	11	4a, 12	12	29.99	E	ESE, 6	ESE	ESE, 7	
West Harshaw, Am. S. S.	Gibraltar	Jucaro, Cuba	21 11 N.	82 54 W.	12	9a, 12	12	29.89	E	E, 8	SE	SSE, 8	NE-SSE.
McDougal, U. S. Navy	Pensacola	Cristobal	22 12 N.	85 12 W.	12	10p, 12	13	29.94	E	E, 9	SE	E, 9	E-SSE.
Darien, Pan. S. S.	Cortez	Mobile	20 20 N.	86 37 W.	12	1a, 13	13	29.79	S	SSE, 6	SSE	SSE, 7	S-SSE.
St. Mary, Br. S. S.	Baltimore	Alvaro Obregon	23 30 N.	86 00 W.	13	5a, 13	13	29.94	SE	E, 6	ESE	SSE, 8	E-SSE.
Teresa Odero, Ital. M. S.	Baytown, Tex.	Gibraltar	[1] 27 43 N.	90 46 W.	14	4a, 14	14	30.03	ESE	ESE, 8	SE	ESE, 10	E-SE.
John D. Archbold, Am. S. S.	New York	Corpus Christi	26 42 N.	91 36 W.	14	4a, 14	14	29.78	ESE	SE, 8	S	S, 11	ESE-SSE.
J. A. Moffett, Jr., Am. M. S.	Corpus Christi	New York	26 38 N.	92 07 W.	14	5a, 14	14	29.63	SSW	Calm	S	SSW, 8	E-Calm-SSW.
W. C. Fairbanks, Am. S. S.	Smiths Bluff, Tex.	Gulfport, N. Y.	28 20 N.	91 40 W.	14	3p, 14	14	29.81	SE	S, 9	S	S, 9	SE-S.
Scanmail, Am. S. S.	Copenhagen	New York	57 12 N.	25 30 W.	15	7p, 15	15	29.35	SW	WSW, 7	WNW	WNW, 8	WSW-WNW.
Maja, Du. M. S.	Curacao	Gibraltar	20 28 N.	55 13 W.	18	3p, 18	19	29.85	NE	ENE, 6	ESE	E, 8	NE-ESE.
De Grasse, Fr. S. S.	Southampton	New York	49 59 N.	22 21 W.	22	10a, 22	23	29.69	W	SSW, 7		W, 8	S-W.
Annie Johnson, Swed. M. S.	Cristobal	London	14 00 N.	73 47 W.	23	5a, 23	23	29.70	ESE	ESE, 4	ENE	SE, 7	NE-SE.
Cristobal, Am. S. S.	do	Port au Prince	15 46 N.	75 50 W.	23	7a, 23	23	29.72	ENE	ENE, 5	ESE	ESE, 7	ENE-ESE.
Sunbeam, Am. S. S.	Montreal	Port Arthur	39 35 N.	68 00 W.	24	Noon, 24	24	29.55	SW	SW, 7	NNW	NW, 8	SW-NNW.
Tolua, Am. S. S.	Havana	Cristobal	19 16 N.	80 31 W.	24	4p, 24	25	29.77	ENE	ESE, 7	SE	ESE, 7	ENE-SE.
Agwistar, Am. S. S.	Progreso	New York	[1] 21 23 N.	89 39 W.	25	6a, 26	26	[2] 28.92	N	Calm	SE	S, 12	N-Calm-S.
Mexico, Am. S. S.	Vera Cruz	Havana	22 00 N.	89 54 W.	26	9a, 26	26	29.25	N	ENE, 10	SE	NE, 12	NE-ESE.
St. Mary, Br. S. S.	New Orleans	Frontera	21 18 N.	91 36 W.	27	6p, 28	29	29.80	ESE	NE, 7	E	NE, 7	ESE-NE-E.
Agwidale, Am. S. S.	Progreso	Tampico	22 08 N.	94 00 W.	28	6p, 28	29	29.78	ESE	ESE, 6	E	ESE, 7	None.
NORTH PACIFIC OCEAN													
Mobile City, Am. S. S.	Honolulu	Balboa	16 54 N.	114 42 W.	1	4a, 2	2	29.68	NNW	WSW, 6	SW	SW, 7	NNW-SSW.
Do	do	do	14 54 N.	106 18 W.	4	5a, 4	4	29.82	NE	NE, 6	SE	NE, 9	
Hopemount, Br. M. S.	Tarahan	Fusan	[1] 30 00 N.	125 34 E.	9	2a, 9	9	[2] 28.74	WNW	WNW, 8	W	W, 8	NW-SW.
Empress of Canada, Br. S. S.	Shanghai	Hong Kong	30 56 N.	122 58 E.	9	2p, 9	9	28.78	N	NE, 6	SSW	NNW, 11	NNW-NE-S.
Silvermaple, Br. M. S.	Manila	Portland, Ore.	32 45 N.	157 00 E.	9	4p, 9	10	29.65	ENE	ESE, 8	S	ESE, 8	ENE-SE.
Bronxville, Nor. M. S.	Los Angeles	Yokohama	47 10 N.	180 00	19	4a, 21	21	29.84	SE	WSW, 8	NW	WSW, 8	SE-SW-NW.
Atago Maru, Jap. M. S.	Yokohama	Honolulu	31 36 N.	175 12 E.	20	Noon, 20	21	29.79	E	NE, 8	ESE	NE, 8	NE-ESE.
Northland, U. S. C. G.	Bering Sea	Norton Sound	66 12 N.	169 54 W.	21	1a, 21	22	29.22		ESE, 5	SSW	S, 8	ESE-SSW.
Nozima Maru, Jap. M. S.	Yokohama	Los Angeles	46 18 N.	175 00 W.	29	Mdt., 29	30	29.54	W	SSW, 4	W	W, 8	

[1] Position approximate.
[2] Barometer uncorrected.

NORTH PACIFIC OCEAN, AUGUST 1938

By WILLIS E. HURD

Atmospheric pressure.—Most of the eastern half of the North Pacific Ocean north of the Tropics was under the influence of anticyclonic conditions during the greater part of August. Very few LOWS entered this part of the ocean in middle latitudes, and those that crossed in higher latitudes had little intensity. The Aleutian LOW, weakly developed, lay over the Bering Sea. In the northeastern waters and along the adjacent coast pressures were higher than the normal of the month. The greatest departure was at Kodiak, where the average pressure, 30.10 inches, was 0.24 inch above. In tropical waters practically normal conditions prevailed.

Extratropical cyclones and gales.—A few extratropical disturbances of mild to moderate intensity occurred along the western part of the steamship routes, but the only one west of the 170th meridian of east longitude reported to have caused a high wind was that of the 9th, in which the British motorship *Silvermaple* experienced a force 8 gale, near 33° N., 157° E. A gale of like force near 32° N., 175° E., was met by the Japanese motorship *Atago Maru* on the 20th, in connection with a disturbance central far to the northward.

In higher latitudes a few LOWS entered into or developed over the Aleutian region, where they were for the most part central in the Bering Sea. None of these disturbances penetrated the Gulf of Alaska. In connection with these mild cyclones, ships experienced fresh local gales (force 8) on the 21st and 29th south of the central Aleutians, and on the 21st and 22d west of the Alaska Peninsula.

TABLE 1.—*Averages, departures, and extremes of atmospheric pressure at sea level, North Pacific Ocean, August 1938, at selected stations*

Station	Average pressure	Departure from normal	Highest	Date	Lowest	Date
	Inches	*Inch*	*Inches*		*Inches*	
Point Barrow	29.82	−0.07	30.08	24	29.44	31
Dutch Harbor	29.98	+.12	30.36	19	29.38	15
St. Paul	29.85	+.07	30.26	23, 24	29.34	15
Kodiak	30.10	+.24	30.34	20	29.72	16
Juneau	30.08	+.06	30.32	21	29.80	1
Tatoosh Island	30.10	+.10	30.29	2	29.77	17
San Francisco	29.95	+.03	30.08	10	29.73	30
Mazatlan	29.86	+.02	29.96	5	29.74	29
Honolulu	29.98	−.03	30.11	14	29.77	19
Midway Island	30.07	−.01	30.24	12	29.94	27, 28
Guam	29.78	−.04	29.89	15	29.53	25
Manila	29.76	+.02	29.83	3, 4, 17	29.65	22
Hong Kong	29.66	.00	29.75	16	29.56	9

NOTE.—Data based on 1 daily observation only, except those for Juneau, Tatoosh Island, San Francisco, and Honolulu, which are based on 2 observations. Departures are computed from best available normals related to time of observation.

Disturbances of the Far East.—Pending receipt of the usual monthly report from the Weather Bureau at Manila on the depressions and typhoons of August in the Far East, there are only scattered comments to make regarding the tropical storms that occurred in these waters.

A press report of August 8 from Tokyo gave information of a severe typhoon approaching Kyushu Island. While we have no information as to the earlier movements of the storm, a special report from the British R. M. S. *Empress of Canada*, Capt. W. T. Kinley, Fourth Officer E. R. Shaw, observer, shows the existence on the 9th of a severe storm east of Shanghai. This steamer, Shanghai to Hong Kong, ran into the gale, of force 8–9 from the north, at 12 noon (China coast time), barometer 29.32. At 1 p. m. the wind had increased to force 11 from the north-northwest, in 30°56′ N., 122°37′ E. At 2 p. m. the vessel entered the cyclone center, with light wind, and barometer 28.78. At 3 p. m. the wind was south, force 10, thereafter diminishing, as the typhoon went inland.

On the 7 p. m. (E. S. T.) map of August 31 a typhoon is shown entering the south coast of Japan near Yokohama. Press reports of September 1 indicate the serious nature of the storm as it affected Yokohama, Tokyo, and neighboring towns and cities. Some 99 persons were reported to have been killed, while damage to property was placed at approximately $28,000,000. About 15,000 of the inhabitants of Tokyo alone were estimated to have been rendered homeless. There was much damage done to shipping, particularly in the harbor of Yokohama, where 34 passenger and freight ships were driven aground and hundreds of small boats were wrecked.

Disturbances of the Southeastern North Pacific.—There are indications from isolated reports that three tropical disturbances occurred in the waters west of Mexico during August. The American steamer *Mobile City*, Honolulu to Balboa, ran into the northerly winds of a westward moving depression late on August 1, and at 4 a. m. of the 2d, in 16°54′ N., 114°42′ W., had a barometer reading of 29.68 inches. The vessel ran out of the depression on the afternoon of the 2d, after experiencing a maximum wind of force 7 from the southwest.

Early on the 4th the same ship encountered a northeast gale of force 9, lowest barometer 29.82, near 15° N., 106° W. Later in the day the wind changed to southeast with lessened force. The indication is that the vessel had passed through the northern half of a second tropical disturbance moving westward in these waters.

The third disturbance was located as a depression over or close to the eastward of the Revillagigedo Islands on the morning of August 18. Twenty-four hours later it lay west or west-southwest of Cape San Lucas, with pressure reported down to 29.50 inches or lower at or near the center. The only gale, a wind of force 8, in connection with it, was reported by an unidentified ship near 25° N., 114° W., on the morning of the 19th. Our 7 p. m. (E. S. T.) map of the 19th shows no further evidence of the cyclone.

Fog.—Along the central part of the northern routes, specifically between about latitudes 44° and 51° N., longitudes 155° and 175° W., there was a concentration of fog, unusual for any summer month in that locality. Over this region fog was reported on at least 23 of the first 26 days of the month. Westward, fog diminished to about 4 days of occurrence east of northern Japan, and eastward it diminished to about 3 days in the coastal waters of Washington and Oregon. South of the 40th parallel there were only isolated occurrences of fog over the ocean, except along the California coast when it was reported on 9 days, and along the Lower California coast, on 3 days.

LATE REPORT: TYPHOONS AND DEPRESSIONS OVER THE FAR EAST, JULY 1938

BERNARD F. DOUCETTE, S. J.

[Weather Bureau, Manila, P. I.]

Typhoon, July 4–10, 1938.—From July 4 to 7 a very shallow low pressure area moved from the Pacific across the Visayan Islands into the China Sea along a west-northwesterly course. As the disturbance approached the regions south of the Paracel Islands and Reefs, it quickly intensified into a small but violent typhoon, which inclined to the northwest, thus bringing the center to Hainan Island where it recurved to the northeast. It moved across the coast into the Continent where it disappeared during the afternoon and evening hours of July 10.

When this disturbance was crossing the Philippines, pressure values were between 755.0 mm and 756.5 mm (29.724 and 29.783 in.) with only slight indications of circulation. At Manila, the barograph trace during the early morning hours (2 to 5 a. m.) July 6, showed an irregular fall and rise of pressure. Compared with the traces on the days before and after, it was unusual inasmuch as it happened only that day. There was some rain accompanying this change of pressure; a wind shift from northeast to northwest and back to northeast (surface winds) occurred also, these events happening when the low pressure center was south of Manila. Barograph records from the provincial stations are not available at the time of writing; a later study of these may show the progress of the disturbance across the archipelago.

Observations from the S. S. *Conte Verde* gave first indications that the disturbance was intensifying. On July 7, 6 a. m. (Manila time) a pressure of 750.2 mm (29.535 in.) with east-northeast winds force 6, in latitude 16.0° N., longitude 113.1° E., was reported. July 8, 2 p. m., the recently established station on one of the Paracel Islands reported a pressure of 749.8 mm (29.520 in.), with south-southeast winds force 9.

Upper winds reported during the period of this storm indicate that two simultaneous surges occurred as it was crossing the Philippines. At Manila, the velocities of a southeasterly current increased from values of about 20 k. p. h. on July 5 to values between 30 and 60 k. p. h. on July 6, the velocities weakening the next day. No increase was shown at the other Philippine aerological stations. Malaya pilots received during this period also show an increase of values between 5 and 45 k. p. h. on July 4 to values between 25 and 60 k. p. h. on July 6, the direction being from the southwest quadrant. On July 7 the southwest current decreased, and on the 8th the direction changed to the east quadrant, according to the data available.

As the disturbance moved across the China Sea and approached the region of the Paracels, a southwesterly current was steadily flowing across Siam and Indio China. The proximity of the typhoon affected only the upper winds of Tourane, changing them to the northwest quadrant, no long ascents being reported and velocities between 10 and 25 k. p. h. recorded. On the 8th, the directions over Tourane changed to the northeast aloft, the typhoon being about 180 miles to the east and moving northwest. At the same time a surge seemed to have occurred over Bandon, Siam, and Saigon, Indo China. At Bandon,